Evaluation and Recommended Determination of a Tribal Resource Management Plan for the Hood Canal Summer-run Chum Salmon Evolutionarily Significant Unit

Submitted for Consideration Under the Endangered Species Act's Tribal Plan Limit [50 CFR 223.209] for the Period January 1, 2002 - December 31, 2006

Tribal Research in Puget Sound, Washington

submitted by the

Puget Sound Indian Tribes and the
Northwest Indian Fisheries Commission

Prepared by NOAA Fisheries Northwest Region
Protected Resources Division
July 31, 2002

4(d) RULE EVALUATION AND RECOMMENDED DETERMINATION

Title of TRMP: Tribal Research Programs affecting the Hood Canal Summer-run Chum Salmon ESU

TRMP Provided by: The Puget Sound Indian Tribes and the Northwest Indian Fisheries Commission, Olympia, Washington

Action: Research and Assessment Plan

ESUs: Hood Canal summer-run chum salmon

4(d) Rule Limit: Tribal Plan Limit [50 CFR 223.209]

NOAA Fisheries Tracking #: NWR/4d/14/2001/004

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Part I. Introduction

Background on the Tribal Plan Limit

On July 10, 2000, the National Marine Fisheries Service (NOAA Fisheries) issued a final rule pursuant to section 4(d) of the Endangered Species Act (ESA) (65 FR 42422, 50 CFR 223.203). That rule applied the take prohibitions of section 9 of the ESA to the threatened salmonid species listed in the rule, but with certain limits on those prohibitions. At the same time NOAA Fisheries issued another final rule specifically for tribal resource management plans (Tribal Plans) (65 FR 42481, 50 CFR 223.209), creating additional section 4(d) limitations on the section 9 take prohibitions (Tribal Plan Limit). The Tribal Plan Limit states that the prohibitions of 50 CFR 223.203(a) do not apply to any activity undertaken in compliance with a Tribal Plan that NOAA Fisheries (on delegated authority from the Secretary of Commerce) has determined will not appreciably reduce the likelihood of survival and recovery for the ESA-listed species. The Tribal Plan Limit sets out the criteria and process for such determination. The best available scientific information is used to determine the Tribal Plan's impact on the biological requirements of the species and ensure that the determination will be consistent with legally enforceable Tribal rights and with the Secretary's trust responsibilities to the Tribes.

The purpose of the Tribal Plan Limit is to establish a process whereby the conservation needs of ESA-listed species are met while respecting Tribal rights, values, and needs. The rule recognizes the Secretary's trust responsibilities to the Tribes and reinforces the commitment to government-to-government relations as expressed in Secretarial Order 3206. The rule also requires the Secretary, in consultation with the Tribes, to use the best available scientific and commercial data (including any Tribal data and analysis) to determine the Tribal Plan's impact on the biological requirements of the species.

Effective March 26, 2001, the Secretary delegated authority to the NOAA Fisheries Northwest and Southwest Regional Administrators to review and make determinations pursuant to the Tribal Plan Limit.

Tribal Submittal

The Northwest Indian Fisheries Commission and the Puget Sound Indian Tribes have submitted a Tribal Plan for review under the Tribal Plan Limit. Activities identified in the Tribal Plan represent a variety of research and assessment activities that directly or indirectly benefit Hood Canal summer-run chum salmon and provide the technical basis for fisheries management and for species conservation and restoration actions. The need for improved and more quantitative understanding of salmonid freshwater and marine survival motivates much of the current research programs. The studies also provide information for the planning and implementation of habitat protection and restoration efforts and monitors their effectiveness. The following provides a brief summary of the Tribal Plan and sets the context for NOAA Fisheries' review.

The initial Tribal Plan was received on July 18, 2001 (NWIFC, 2001a). An updated version of the Tribal Plan with additional information on some of the projects and changes to the plan's terms and conditions was submitted on November 15, 2001 (NWIFC, 2001b), in response to NOAA Fisheries' request for clarification of the original submittal. The final draft of the Tribal Plan, signed on December 18, 2001 (NWIFC, 2001c), contained all projects anticipated to

be conducted for the period January 1, 2002, through December 31, 2006. Updates and clarifications to two of the projects and two new projects (NWIFC, 2002a; NWIFC, 2002b; NWIFC, 2002c) were received in 2002 and are considered part of the final plan. The Tribal Plan describes Tribal chum salmon research and assessment activities in the Hood Canal and Strait of Juan de Fuca. Tribal resource management entities cooperate with the Washington Department of Fish and Wildlife (WDFW) and other state and local agencies in many of the activities. The Tribal Plan describes only those activities that are principally funded through, and managed by, Tribal agencies. This Tribal Plan is within the regulatory definition of "tribal plans" in the Tribal Plan Limit (50 CFR 223.209(b)(1)). As per the Tribal Plan Limit, NOAA Fisheries consulted regularly with the Tribes during development of the Tribal Plan to exchange information and discuss what would be needed to provide for the conservation of the ESA-listed species.

Scope and Structure of NOAA Fisheries' Analysis

The Tribal Plan under consideration is directed at or may affect the threatened Hood Canal summer-run chum salmon ESU (see ESU map in Part V of this document). Threatened Puget Sound chinook salmon also may be encountered during Tribal research projects since they occupy areas in Hood Canal and Strait of Juan de Fuca. Research activities directed at Puget Sound chinook salmon are detailed in a separate Tribal Chinook Research Plan (BIA, 2001) pursuant to the Tribal Plan Limit.

Part II of this document summarizes biological information about affected ESUs, describes the types of research proposed, and includes estimates of the annual research-related take. Part III describes the factors NOAA Fisheries used to evaluate the Tribal Plan, and how the plan addressed the factors. NOAA Fisheries developed a set of factors under a separate 4(d) rule for state research plans (65 FR 42422, July 10, 2000) and most of those were used as factors in making the Tribal Plan Limit determination.

At the request of the Tribes, NOAA Fisheries assessed a five year Tribal Plan which includes research activities from 2002 through 2006, although the Tribal Plan describes only projects that are planned for the year 2002. The Tribes anticipate additional research projects will be submitted in future years that are similar to the research analyzed in this document. In addition, some of the research currently described in the Tribal Plan may increase in scope (i.e., require additional take, expand to other areas, include other life stages). Increases in funding, changes in environmental factors (floods, droughts, etc.), and Tribal program changes to account for such things as hatchery closures are expected to require the Tribes to request additional research and modifications to research already submitted. NOAA Fisheries and the Tribes anticipate these requests could increase existing take estimates by up to 20%. Although it is difficult to anticipate the actual amount of research that will be requested, NOAA Fisheries believes that adding this increase to take already requested is a reasonable precaution to prepare for the inevitable modification requests. Moreover, evaluating a higher take level now provides for a more robust analysis of the effects of the actions that may occur in the ESU. NOAA Fisheries finds it is necessary and advisable to analyze this forecasted take at this time so that additional or modified research projects are implemented in an expeditious manner to the benefit of the ESA-listed species.

NOAA Fisheries and the Tribes will review new and modified research requested during

the period of the plan and determine whether it meets the factors in the rule, fits within the analysis of this document, and will be conducted using the same methods and for the same purposes as the research activities analyzed herein. Any additional research activities added to the Tribal Plan during this and future years will need to comply with the same terms and conditions as contained in the Tribal Plan signed on December 18, 2001. Part II of this document provides a brief summary of the Tribal Plan, as submitted (including additional take allowances to account for the increased scope described above) and sets the context for NOAA Fisheries' review.

Finally, some of the projects contained in the Tribal Plan will be funded, approved, or conducted by Federal agencies. Federal agencies are responsible for complying with section 7 of the ESA because they fund, carry out, permit, or authorize activities that may affect ESA-listed species or their habitat. NOAA Fisheries' review and determination of the Federal agency actions will be described in a separate and concurrent memorandum for the record.

***Federal Register* Notices**

In compliance with the Tribal Plan Limit's requirement to seek public comment, NOAA Fisheries published notice on May 16, 2002, of the availability of its pending determination as to whether the Tribal Plan will appreciably reduce the likelihood of survival and recovery of the ESA-listed salmonids (67 FR 34907). The pending determination was also submitted to NOAA Fisheries researchers and staff for review. No comments were received on the Secretary's pending determination. The evaluation and recommended determination document provides an analysis of the research to be conducted in accordance with the submitted Tribal Plan, and the basis for the determination, will be published in the *Federal Register* as required by the Tribal Plan Limit.

Part II. ESU Summary

Hood Canal Summer-run Chum Salmon ESU

ESU Description, Habitat, and Geographic Range

This ESU was listed as a threatened species on March 25, 1999 (64 FR 14508), and includes all naturally-produced populations of summer-run chum salmon (and their progeny) in Hood Canal and its tributaries as well as populations in Olympic Peninsula rivers between Hood Canal and Dungeness Bay, Washington (see ESU map in Part V of this document). Critical habitat was designated on February 16, 2000 (65 FR 7764) and vacated by court order on March 11, 2002. NOAA Fisheries will undertake a new critical habitat analysis and will re-issue critical habitat designations after that analysis is complete.

Major river basins containing spawning and rearing habitat for this ESU comprise approximately 1,753 square miles in Washington. The following river basins are known to support naturally spawning summer-run chum salmon: Big Quilcene River, Little Quilcene River, Hamma Hamma River, John Creek, Duckabush River, Dosewallips River Lilliwaup Creek, Union River, Snow Creek, Jimmycomelately Creek, Salmon Creek and Dungeness River (NMFS, 1996 and NMFS, 1997). More detailed listing and habitat information (i.e., specific watersheds, migration barriers, habitat features, and special management considerations) for this ESU can be found at http://www.nwr.noaa.gov.

Biological Information

Fish in this ESU are summer-run chum salmon. Juveniles (typically the fry stage) outmigrate to seawater almost immediately after emergence from the gravel and do not have a distinct smolt phase like other salmonids. Subadults and adults forage in coastal and offshore waters of the North Pacific Ocean prior to returning to spawn in their natal streams. Chum salmon of this ESU spawn from mid-September to mid-October (whereas fall-run chum salmon in the same geographic area spawn from November to December or January). Spawning typically occurs in the mainstem and lower portions of river basins. Adults typically mature between ages of 3 and 5. Hatchery chum salmon are also distributed within the range of this ESU.

ESU Status

Formal modeling of extinction risk is not available for the Hood Canal summer-run chum salmon ESU. However, the March 25, 1999 (64 FR 14508), listing determination and supporting species status reviews (NMFS, 1997; NMFS, 1999) provide relevant and recent information regarding the ESU's status.

As described in these reviews, spawning escapement of summer-run chum salmon in Hood Canal (excluding the Union River) numbered over 40,000 fish in 1968, but then declined to 173 fish in 1989. In 1994, when petitions were filed with NOAA Fisheries to list summer-run chum salmon in Hood Canal, of 12 streams in Hood Canal identified by the petitioners as recently supporting spawning populations of summer-run chum salmon, five may already have become extinct, six of the remaining seven showed strong downward trends in abundance, and all were at low levels of abundance. The populations in Discovery Bay and Sequim Bay were

also at low levels of abundance, with declining trends.

In 1991, only seven of 12 streams that historically contained spawning runs of summer chum salmon still had escapements. Then in 1995-96, escapement increased to more than 21,000 fish in northern Hood Canal, the largest return in more than 20 years. These increases in escapement were observed primarily in rivers on the west side of Hood Canal, with the largest increase occurring in the Big Quilcene River where the U.S. Fish and Wildlife Service (USFWS) has been conducting an enhancement program starting with the 1992 brood year. In addition, the USFWS has reintroduced native stocks of chum salmon in Big Beef and Chimacum Creeks. Some streams on the east side of Hood Canal continued to have either no adults returning (Anderson Creek and Dewatto River) or no increase in escapement (Tahuya and Union Rivers).

Summer runs of chum salmon in the Strait of Juan de Fuca (Snow and Salmon Creeks in Discovery Bay and Jimmycomelately Creek in Sequim Bay) are also part of this ESU. These populations, like many of the populations in this ESU, are at very low levels compared to historical escapements. Further, though escapement of summer-run chum salmon to Salmon Creek increased in 1996, the other two populations in the Strait of Juan de Fuca did not show similar increases, and the overall trend in the Strait populations has been one of continued decline.

The most recent escapement estimates available from the Summer Chum Salmon Conservation Initiative were reported in a supplemental report (WDFW and PNPTT, 2000) for 1998 and estimated total summer chum salmon escapement into the Hood Canal and Strait of Juan de Fuca at 4,546 individuals. The Tribal Plan also contained summer chum escapement estimates for the period 1980 - 2000 (NWIFC, 2000c).

Research Activity Types and Estimated Take

The specific research projects and related take estimates are described in detail in the submittals (NWIFC, 2001a,b,c; NWIFC, 2002a,b,c) and those documents are incorporated in full herein. The Puget Sound Indian Tribes will coordinate research projects for the period January 1, 2002 - December 31, 2006, that are expected to take ESA-listed Hood Canal summer-run chum salmon. Research is distributed throughout the range of the ESU in approximately six basins and includes: (1) observational activities and activities that may harass ESA-listed fish such as foot or snorkel surveys to observe/count fish, habitat surveys conducted both from the stream bank and in the water, and observing fish as they move through fish traps; (2) capturing fish with traps and nets; (3) anesthetizing fish to minimize stress due to handling; and (4) handling to measure, count and mark fish, obtain biological samples, and to check fish for marks and tags.

While these projects will occur within river basins containing spawning and rearing habitat for this ESU, most involve little if any habitat alteration. Those that do alter habitat generally involve only transitory effects such as installing a seasonal screw trap (e.g., cabling to adjacent trees and rocks), conducting foot surveys of instream or riparian habitats, or installing scour monitoring devices. Also, habitat investigations involving data collection on physical structures and fish communities are included in the Tribal Plan but are not expected to adversely modify habitat.

Purposes for Tribal research projects vary considerably within the range of this ESU. Most projects specifically target ESA-listed fish while some are more general in nature (e.g.,

spawning escapement surveys for multiple species) or could be expected to encounter ESA-listed fish but in a manner where actual ESU identification is impossible (e.g., habitat assessments). The Tribal Plan details a diverse set of research objectives, including: (1) determining the abundance, distribution, migratory timing, and habitat requirements of adult and juvenile fish; (2) surveying spawning and rearing adult and juvenile ESA-listed and unlisted fish; (3) conducting genetic studies using tissue and scale samples; (4) investigating migration behaviors and timing; (5) monitoring habitat use and restoration activities; (6) assessing juvenile fish food preferences; and (7) investigating the ecological interactions between hatchery- and natural-origin salmonids. These studies will enhance resource manager's knowledge about species life history, specific biological requirements, genetic make-up, migration timing, responses to anthropogenic impacts, and survival in various parts of the ESU's range.

Many of these research projects focus on monitoring and evaluating management actions and tasks that are recommended for the conservation of ESA-listed salmonid populations. As such, research has not been identified as a factor for decline (64 FR 14308, March 24, 1999) but instead is generally considered an essential component of salmonid recovery efforts (NRC, 1996). The Tribal Plan acknowledges that research projects require working in stream channels but all are designed to minimize impacts to ESA-listed fish and their habitats. In particular, the habitat assessment projects included in the Tribal Plan are scheduled to preclude or minimize disturbance of upstream migrating adults or spawners, spawning areas (redds), or migrating juveniles.

None of the planned research involves fish handling intended to kill ESA-listed chum salmon. However, any fish handling carries an inherent potential for causing or promoting stress, disease, injury, or death of the specimen. The Tribal Plan estimates that 77,000 juvenile chum salmon will be handled each year. Of these, approximately 1.0% are forecasted to be killed unintentionally, based on researcher's estimates. No adult chum salmon are expected to be handled or killed (see Table 1).

It is not possible to make accurate estimates of the number of adults and juveniles in this ESU during the coming five years. However, NOAA Fisheries will work with the Tribes and WDFW to generate ! and evaluate research-related take in light of ! such estimates via annual reporting requirements associated with determinations under the Tribal Plan Limit. Despite these uncertainties, it is possible to make rough estimates of the number of adults and juveniles in this ESU during the coming five years. Using an average of the most recent five years' estimates, it is likely that future returns will number in the thousands of adult fish. While we currently lack data on naturally-produced juvenile chum salmon production for this ESU, it is possible to make rough estimates of juvenile abundance from adult return data. The five-year average approximated 8,800 spawner escapements for this ESU with estimated numbers varying from 3,407 fish in 1996 to 19,683 fish in 2000 for total escapements in the Hood Canal and the Strait of Juan de Fuca (NWIFC, 2001c). Although the average approximated 8,800 spawners, the conservative 1996 escapement estimate is used to determine the smolt emigration for this ESU. A rough estimate of summer chum smolt escapement is 880 smolts per female (from Big Beef Creek) (NWIFC, 2001). This yields an average smolt production figure of 1,499,000 in Hood Canal and the Strait of Juan de Fuca if the estimated female escapement is 1,703 (half of 3,407).

Juvenile chum salmon outmigrate to seawater almost immediately after emergence from

the gravel thus all juvenile fish to be encountered during the tribal research will be in this life stage. Thus, it is possible that approximately 5% of the juvenile population may be subject to non-lethal research-related take, based on researcher's estimates. Less than 0.1% (800/1,499,000) of the juveniles may be killed.

Table 1. Summary of Requested Annual (January-December) Take of ESA-listed Hood Canal Summer-run Chum Salmon.

Type of Take	Total Estimated Take	% Mortality
Juvenile - Handling	**77,000**	
Juvenile - Lethal	**800**	
Total Juvenile Take	**77,800**	**1.0%**
Adult - Handling	**0**	
Adult - Lethal	**0**	
Total Adult Take	**0**	**0**

To account for the dynamic and potentially increasing scope of research that may affect ESA-listed Hood Canal summer-run chum salmon each year, an additional 20% of the requested fish handling and lethal take numbers are included in this evaluation, although it is difficult to anticipate the actual amount of research to be requested. Using the juvenile estimate of approximately 1.5 million fish and adding 20% additional take to the amount requested each year, approximately 6% (92,400/1,499,000) of the juvenile population may be subject to non-lethal, research-related take and less than 0.1% (960/1,499,000) of the juveniles may be killed. Hence, only a small fraction of the population are expected to be handled and even fewer killed under the Tribal Plan.

Specific Issues of Concern

The following specific concerns have been identified for research activities in the Tribal Plan:

Listed species under the jurisdiction of the U.S. Fish & Wildlife Service (USFWS): Researchers are required to contact the USFWS regarding listed bull trout and other species under their jurisdiction that may be taken during this research. The following projects mention bull trout or other USFWS-listed species that may be affected by the project:

4.1.3.1 Salmon Spawning Escapement Surveys in the Dosewallips River Basin
4.2.3.1 Dosewallips River Smolt Enumeration
4.3.2.1 Juvenile Salmonid Utilization of Tidal Creeks in North Hood Canal
4.3.2.2 Juvenile Salmonid Utilization of Estuarine Habitat in the North Hood Canal
4.3.2.4 Utilization of Estuarine Habitat - Tarboo Bay

4.3.2.5 Use of Tidal Creeks of Tarboo Bay
4.4.1.1 Dosewallips River Habitat Assessment

Surrogate Non-listed Hatchery Fish: Hatchery fish shall be used as test animals whenever possible as surrogates for ESA-listed fish. Project leaders must notify NOAA Fisheries of their plans. The following project proposes to use hatchery fry to calibrate trap efficiencies:

4.2.3.1 Dosewallips River Smolt Enumeration

Part III. Evaluation and Determination

Tribal Plan Evaluation Factors

NOAA Fisheries has reviewed the Tribal Plan submitted by the Tribes and its potential to affect the Hood Canal summer-run chum salmon ESU. In doing so NOAA Fisheries considered various factors (listed below) that are germane to its evaluation of research programs. ESA-listed Puget Sound chinook salmon may be present in the areas where the projects are proposed to be conducted. Evaluation of the effects of these research projects on chinook salmon have been addressed in a separate Tribal Research Plan (BIA, 2001).

(1) Scientific research activities involving purposeful take is conducted by Tribal employees or contractors or as a part of a monitoring and research program overseen by or coordinated with the Tribe(s). As a related standard, NOAA Fisheries has advised the Tribe(s) that research must be conducted by professional biologists or individuals with fisheries expertise.

The Tribal Plan indicates that all research projects (purposeful [direct], and incidental and indirect take) will be undertaken by a Tribe, Tribal member, Tribal permittee, Tribal employee, or Tribal agent. A principal investigator who works for one of the Puget Sound Indian Tribes has been identified for all projects in the plan. Tribal staff also provided assurances that professional biologists or individuals with fisheries expertise will conduct the activities in the plan.

(2) The Tribe(s) provide for NOAA Fisheries' review and approval a list of all scientific research activities involving direct and incidental take planned each year, including an estimate of the total take that is anticipated, a description of the study design, including a justification for taking the species and a description of the techniques to be used, and a point of contact.

The Tribes submitted a list of all research activities with the information described for this factor. The estimates of take, description of study design, justification for the take, description of the techniques to be used, and information on the principal investigators are summarized in Part II of this document (while more detailed information is contained in the Tribal Plan).

(3) The Tribe(s) annually provides to NOAA Fisheries the results of scientific research activities that may directly or incidentally take threatened salmonids, including a report of the take resulting from the studies and a summary of the results of such studies.

The Tribes have agreed to report annually the results of the research activities, including reports of all research-related take. Specific details of each project and the reporting requirements are described in the Tribal Plan. Any detail not included in the Tribal Plan (such as the dates activities would occur or specific locations) would be included in the annual report. All reports will include the following:

> The actual number of fish taken (handling, mortality and other) by life stage and sex (where possible) and a description of how all take estimates were derived (if the number of ESA-listed species taken was calculated).

(4) Electrofishing in any body of water known or suspected to contain threatened salmonids is conducted in accordance with NOAA Fisheries' Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act. As a related standard, NOAA Fisheries has notified the Tribe(s) that research activities must comply with all other relevant guidelines.

No electrofishing activities are proposed in the Tribal Plan. Should a project be proposed during the plan's time frame, Tribal investigators have indicated that the activities would be conducted according to NOAA Fisheries' Electrofishing Guidelines published in June 2000 (NMFS, 2000). The Tribes have also provided assurances that research activities will be conducted according to other relevant Tribal, state, local, and Federal guidelines.

(5) Does the Tribal submittal clearly demonstrate that the proposed projects will promote the conservation of the species, enhance the species' survival, or add significantly to NOAA Fisheries' and the Tribe(s)' knowledge of the ESA-listed species?

Yes. The Tribal Plan contains research projects designed to provide critical information that will help resource managers make more effective and responsible decisions to assist in the conservation and recovery of threatened species. For example, a number of projects identified in the Tribal Plan will provided needed information about abundance, distribution, and condition of chum salmon and other fish populations in the Hood Canal region. Numerous projects are designed specifically to enhance knowledge of the ESU's life history by surveying rearing fish and habitat conditions. Other projects will evaluate survival in the river systems (e.g., smolt enumeration studies), investigate specific biological requirements, migration timing, and responses to anthropogenic impacts. In addition, each of these projects is designed to address data gaps and a prioritized listed of research identified in the summer chum salmon conservation initiative (WDFW and PNPTT, 2000).

(6) Does the Tribal submittal demonstrate a bona fide effort to minimize or mitigate take (e.g., by using special handling techniques, facilities, by using non-listed or hatchery fish whenever possible, or by making efforts to prevent the overutilization of small populations)?

Yes. As described in the Tribal Plan (and in (2) above), numerous measures have been anticipated and incorporated into study designs to minimize impacts to the ESA-listed species. Examples of strategies to minimize take of ESA-listed species include: (1) conducting activities according to all relevant Tribal, state, local, and Federal guidelines; (2) avoiding contact with redds during stream surveys; (3) using anesthetics when necessary to minimize handling stress and allowing fish to fully recover from anesthesia before release; (4) employing snorkeling where possible to reduce collection and handling stresses; (5) using non-lethal tissue samples; (6) monitoring traps and removing debris as needed; and (7) using unlisted fish in place of ESA-listed fish for trap efficiency estimates. All of these demonstrate a bona fide effort to minimize the take of ESA-listed salmon.

(7) Does the Tribal submittal assess the overall impacts, both direct and indirect, on the ESUs and constituent populations (i.e., what proportion of the ESU will be subject to research-related take)?

It is not possible to make accurate estimates of the numbers of adult and juvenile Hood Canal summer-run chum salmon during the coming five years. However, based on previous years' adult abundance estimates, it is likely that the actual number of juvenile fish in the ESU will be substantially higher than total number proposed for research related take. Moreover, actual fish mortalities resulting from implementation of the Tribal Plan are expected to be a small fraction of the total handling take of juveniles (Table 1). No adult chum salmon are proposed to be handled. Using previous years' estimates it is likely that adult returns will number at least a few thousand adult fish.

The vast majority of the research projects in the Tribal Plan focus on monitoring and evaluating management actions that are recommended for the conservation of the listed ESU. Research has not been identified as a factor for decline for the affected ESUs and is generally considered an essential part of salmon and steelhead recovery efforts (NRC, 1996). The projects will provide information that will enhance various entities' ability to make more effective and responsible decisions to aid ESA-listed fish. The resulting data will enhance knowledge about species life history, specific biological requirements, genetic make-up, migration timing, responses to anthropogenic impacts, and survival in various parts of the ESUs' range.

All of the proposed Tribal research projects involve observation and fish handling that is not intended to kill ESA-listed fish. However, observation and handling do have the potential to cause stress, disease, injury, or other sub-lethal effects. Researchers will use techniques generally accepted in their profession (e.g., anesthetics), when necessary to safely handle fish. To reduce risks to ESA-listed fish, all researchers are required to follow established state and Federal guidelines, such as NOAA Fisheries Electrofishing Guidelines (NMFS, 2000). Based on extensive prior experience with the techniques the Tribal researchers will use and their stated minimization and mitigation measures, the unintentional mortality of ESA-listed fish is likely to be very low.

Also, the research activities will not be concentrated in one stream or watershed, but rather will be distributed throughout the ESU's range, thereby further diminishing the impacts of any take. For all these reasons, research-related take is not expected to reduce the ESU's populations, their reproductive capacities or the distribution of populations in the affected ESU to the point of appreciably reducing their ability to survive and recover in the wild.

(8) Will the research activities, as proposed by the Tribe(s), directly or indirectly destroy or adversely modify the species' habitat?

No. While these projects occur within major river basins containing spawning and rearing habitat for the Hood Canal summer-run chum salmon and Puget Sound chinook salmon ESUs, most are low impact, limited-sized and limited-duration activities that involve little if any habitat alteration. Projects that might have a habitat effect involve transitory effects such as installing a seasonal screw trap (e.g., cabling to adjacent trees and rocks), conducting foot surveys of instream or riparian habitats, or installing scour monitoring devices. Therefore, NOAA Fisheries concludes that the projects described in the Tribal Plan will not directly or indirectly destroy or adversely modify the species' habitat.

NOAA Fisheries' Determination

NOAA Fisheries has reviewed the Tribal Plan submitted by the Tribes and evaluated it against the requirements of the Tribal Plan Limit and the foregoing factors. The Tribal Plan is consistent with the rule and those factors, and adequately minimizes the risk of take of Hood Canal summer-run chum salmon. NOAA Fisheries' determination is that the Tribal Plan will not appreciably reduce the likelihood of survival and recovery for the ESA-listed species. This determination is consistent with NOAA Fisheries' obligation to conserve ESA-listed species under the ESA and meet trust obligations to Indian Tribes, in part, by recognizing the Tribes as comanagers with state and Federal agencies. The Tribal Plan provides sufficient conservation for the ESA-listed species and therefore take prohibitions will not apply to the research contained in the Tribal Plan during the period January 1, 2002 - December 31, 2006.

Terms and Conditions

The Tribal Plan includes implementation terms and conditions to assure that the take of ESA-listed salmon associated with the research is minimized and constrained at or below the levels stated in the project descriptions. To have the Tribal Plan Limit apply, the terms and conditions, including reporting requirements and modification process, included in the Tribal Plan will be followed. The annual report will be submitted to Garth Griffin, Protected Resources Division, NOAA Fisheries, 525 NE Oregon Street, Suite 500, Portland, OR, 97232, by December 31st of each year. Any detail not included in the Tribal Plan (such as the dates activities would occur or specific locations) would be included in the annual report.

In addition to the terms and conditions contained in the Tribal Plan, NOAA Fisheries identified two areas of concern that affect specific research projects:

(1) Listed species under the jurisdiction of the USFWS: Researchers are required to contact the USFWS regarding listed bull trout and other species under their jurisdiction that may be taken during this research.

(2) Surrogate Non-listed Hatchery Fish: Hatchery fish shall be used as test animals whenever possible as surrogates for ESA-listed fish and project leaders must notify NOAA Fisheries of their plans.

Modification Process

As the Tribal Plan states, new projects, or modifications of ongoing projects, may be initiated within the five year scope of this plan. These new projects will be described in the prescribed format and submitted to NOAA Fisheries, to allow assessment of their associated take within the context of the listed ESU and the local affected populations. Descriptions of new projects will be submitted to NOAA Fisheries at least 30 days prior to their initiation date to enable adequate review, within the context of other chum salmon research.

Reevaluation Process

NOAA Fisheries will reevaluate this determination if: (1) the amount or extent of annual take specified in this evaluation is exceeded or is expected to be exceeded; (2) new information or project monitoring reveals effects that may affect ESA-listed species in a way not previously

considered; (3) the research projects are modified in a way that causes an effect on the ESA-listed species that was not previously considered in NOAA Fisheries' evaluation; or (4) a new species is listed or critical habitat is designated that may affect NOAA Fisheries' evaluation of the Tribal Plan.

Part IV. References

Bureau of Indian Affairs Submittals and Correspondence

NWIFC. 2001a. Email from Will Beattie, Conservation Coordinator, Northwest Indian Fisheries Commission, conveying the first draft of the Tribe's Research Plan for consideration under NOAA Fisheries' Tribal Plan Limit, to Leslie Schaeffer, NOAA Fisheries, dated July 18, 2001.

NWIFC. 2001b. Email from Will Beattie, Conservation Coordinator, Northwest Indian Fisheries Commission, conveying the second draft of the Tribe's Research Plan for consideration under NOAA Fisheries' Tribal Plan Limit, to Leslie Schaeffer, NOAA Fisheries, dated December 6, 2001.

NWIFC. 2001c. Email from Will Beattie, Conservation Coordinator, Northwest Indian Fisheries Commission, conveying the final draft of the Tribe's Research Plan for consideration under NOAA Fisheries' Tribal Plan Limit, to Leslie Schaeffer, NOAA Fisheries, dated December 17, 2001.

NWIFC. 2002a. Email from Will Beattie, Conservation Coordinator, Northwest Indian Fisheries Commission, conveying an updated description of project 4.2.3.2, to Leslie Schaeffer, NOAA Fisheries, dated April 15, 2002.

NWIFC. 2002b. Email from Aimee Keller, Fisheries Biologist, Port Gamble S'Klallam Tribe, conveying an updated description of project 4.2.3.1, to Leslie Schaeffer, NOAA Fisheries, dated May 1, 2002.

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Part V. ESU Map